CLEAN COPY OF ALL AMENDED AND NEW CLAIMS PROVIDED IN COMPLIANCE WITH 37 C.F.R. 1.121

1. A photochromic [1,2-b]naphthopyran having a fluoro substituted in at least one of the 7-poaition or the 9-position of the naphthopyran, the [1,2-b]naphtopyran comprising either 2-phenyl or 2-heteroaryl groups, and the [1,2-b]naphthopyran having either 7-fluoro-9-alkoxy or 7-alkoxy-9-fluoro substituents.

2. The photochromic naphthopyran of claim 1 wherein the 2-position of the naphthopyran has two aromatic substituents thereon.

3. The photochromic naphthopyran of claim 2 wherein at least one 2-position aromatic substituent comprises a phenyl group.

4. The photochromic naphthopyran of claim 2 wherein at least one 2-position aromatic substituent comprises a phenyl group having one substituent selected from the group consisting of an anthranilyl, azepinyl, benzoxazolyl, diazepinyl, diazolyl, dialkylamino, imidazolidinyl, imidazolyl, imidazolinyl, indazolyl, indoleninyl, indolinyl, indolizinyl, indolyl, indoxazinyl, isobenzazolyl, isoindolyl, isooxazolyl, isooxazyl, isopyrrol, isoquinolyl, isothiazolyl, julolideno, morpholino, morpholinyl, oxadiazolyl, oxathiazolyl, oxathiazyl, oxathiolyl, oxatriazolyl, oxazolyl, piperazinyl, piperazyl, piperidyl, purinyl, pyranopyrrolyl, pyrazinyl, pyrazolidinyl, pyrazolinyl, pyrazolyl, pyrazyl, pyridazinyl, pyridazyl, pyridyl, pyrimidinyl, pyrimidyl, pyridenyl, pyrrolidinyl, pyrrolinyl, pyrroyl, quinolizinyl, quinocyclidinyl, quinolyl, thiazolyl, triazolyl and triazyl group.

5. The photochromic naphthopyran of claim 4 wherein the other 2-position aromatic substituent comprises a phenyl moiety.

6. The photochromic naphthopyran of claim 3 wherein the other 2-position aromatic substituent comprises a phenyl group having one substituent selected from the group

consisting of an anthranilyl, azepinyl, benzoxazolyl, dialkylamino, diazepinyl, diazolyl, imidazolidinyl, imidazolyl, imidazolinyl, indazolyl, indoleninyl, indolinyl, indolizinyl, indolyl, indoxazinyl, isobenzazolyl, isoindolyl, isooxazolyl, isooxazyl, isopyrrol, isoquinolyl, isothiazolyl, julolideno, morpholino, morpholinyl, oxadiazolyl, oxathiazolyl, oxathiazyl, oxathiolyl, oxatriazolyl, oxazolyl, piperazinyl, piperazyl, piperidyl, purinyl, pyranopyrrolyl, pyrazinyl, pyrazolidinyl, pyrazolinyl, pyrazolyl, pyrazyl, pyridazinyl, pyridazyl, pyridyl, pyrimidinyl, pyrimidyl, pyridenyl, pyrrolidinyl, pyrrolinyl, pyrroyl, quinolizinyl, quinocyclidinyl, quinolyl, thiazolyl, triazolyl and triazyl group.

7. The naphthopyran of claim 1 wherein the compound naphthopyran displays two absorption maximum peaks, one between 440 and 510 nm, and the other between 550 and 630 nm.

8. The naphthopyran of claim 2 wherein the compound naphthopyran displays two absorption maximum peaks, one between 440 and 510 nm, and the other between 550 and 630 nm.

9. The naphthopyran of claim 3 wherein the compound naphthopyran displays two absorption maximum peaks, one between 440 and 510 nm, and the other between 550 and 630 nm.

10. The naphthopyran of claim 4 wherein the compound naphthopyran displays two absorption maximum peaks, one between 440 and 510 nm, and the other between 550 and 630 nm.

11. The naphthopyran of claim 5 wherein the compound naphthopyran displays two absorption maximum peaks, one between 440 and 510 nm, and the other between 550 and 630 nm.

12. The naphthopyran of claim 6 wherein the compound naphthopyran displays two absorption maximum peaks, one between 440 and 510 nm, and the other between 550 and 630 nm.

13. An ophthalmic lens having at least one layer thereon comprising a transparent binder and the naphthopyran of claim 1.

14. An ophthalmic lens having at least one layer thereon comprising a transparent binder and the naphthopyran of claim 2.

15. An ophthalmic lens having at least one layer thereon comprising a transparent binder and the naphthopyran of claim 3.

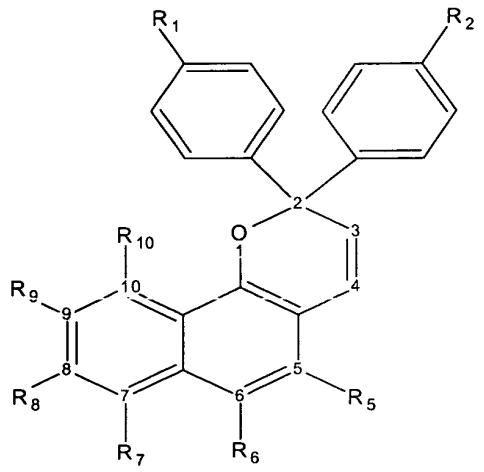
16. An ophthalmic lens having at least one layer thereon comprising a transparent binder and the naphthopyran of claim 9.

17. An ophthalmic lens having at least one layer thereon comprising a transparent binder and the naphthopyran of claim 10.

18. An ophthalmic lens having at least one layer thereon comprising a transparent binder and the naphthopyran of claim 11.

19. An ophthalmic lens having at least one layer thereon comprising a transparent binder and the naphthopyran of claim 12.

21. A naphthopyran compound of the formula:



wherein:

At least one of R_7 and R_9 comprise a fluorine and the remaining R groups may be independently selected from

hydrogen, hydroxy, halogen, alkyl group, alkoxy group, aryl group, carboxyester, cyclo group,

--CH(V) R_{14}, wherein V is --CN or --COO R_{15}, R_{14} is an aliphatic or aromatic group, and each R_{15} is hydrogen, C_1-C_6 alkyl, phenyl(C_1-C_3)alkyl, mono(C_1-C_6)alkyl substituted phenyl(C_1-C_3)alkyl, mono(C_1-C_6)alkoxy substituted phenyl(C_1-C_3)alkyl groups, or the unsubstituted, mono- or di-substituted aryl groups phenyl or naphthyl,

--CH(R_{16})Y, wherein R_{16} is hydrogen, C_1-C_6 alkyl or the unsubstituted, mono- or di-substituted aryl groups phenyl or naphthyl groups, and Y is --COOR_{15}, --COR_{17}, or --CH_2 OR_{18}, wherein R_{17} is hydrogen, C_1-C_6 alkyl, the unsubstituted, mono- or di-substituted aryl groups phenyl or naphthyl, amino, mono(C_1-C_6)alkylamino, di(C_1-C_6)alkylamino, phenylamino, mono- or di-(C_1-C_6)alkyl substituted phenylamino, mono- or di-(C_1-C_6)alkoxy substituted phenylamino, diphenylamino, mono- or di(C_1-C_6)alkyl substituted diphenylamino, mono- or di-(C_1-C_6)alkoxy substituted diphenylamino, morpholino, or piperidino; R_{18} is hydrogen, --COR_{15}, C_1-C_6 alkyl, C_1-C_3 alkoxy(C_1-C_6)alkyl, phenyl(C_1-C_3)alkyl, mono(C_1-C_6)alkyl group substituted phenyl(C_1-

C_3)alkyl group, mono(C_1-C_6)alkoxy substituted phenyl(C_1-C_3)alkyl groups, or the unsubstituted, mono- or di-substituted aryl groups phenyl or naphthyl groups, each of all of the aforedescribed substituents on aryl group being C_1-C_6 alkyl groups or C_1-C_6 alkoxy groups, or

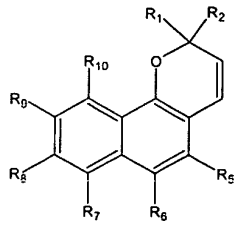
any adjacent R groups may together form a ring group.

22. The naphthopyran of claim 21 wherein each R_1, R_2, R_3, R_4, R_5, R_6, R_8, R_{10}, R_{11}, and R_{12}, is selected from the group consisting of hydrogen, hydroxy, halogen, alkyl group of 1-5 carbon atoms, alkoxy groups of 1-5 carbon atoms, carboxy ester of up to 10 carbon atoms, heterocyclic ring groups, and aryl groups of up to 12 carbon atoms.

23. The naphthopyran of claim 22 wherein at least one of R1 and R2 are a substituted phenyl group having a substituent selected from the group consisting of an anthranilyl, azepinyl, benzoxazolyl, diazepinyl, diazolyl, imidazolidinyl, imidazolyl, imidazolinyl, indazolyl, indoleninyl, indolinyl, indolizinyl, indolyl, indoxazinyl, isobenzazolyl, isoindolyl, isooxazolyl, isooxazyl, isopyrrol, isoquinolyl, isothiazolyl, morpholino, morpholinyl, oxadiazolyl, oxathiazolyl, oxathiazyl, oxathiolyl, oxatriazolyl, oxazolyl, piperazinyl, piperazyl, piperidyl, purinyl, pyranopyrrolyl, pyrazinyl, pyrazolidinyl, pyrazolinyl, pyrazolyl, pyrazyl, pyridazinyl, pyridazyl, pyridyl, pyrimidinyl, pyrimidyl, pyridenyl, pyrrolidinyl, pyrrolinyl, pyrroyl, quinolizinyl, quinocyclidinyl, quinolyl, thiazolyl, triazolyl and triazyl groups.

25. A naphthopyran comprising 2,2-(4-methoxy-4'-pyrrolidino)diphenyl-5-methylol-7-fluoro-9-methoxy-[2H]-naphtho[1,2-b]pyran.

26. A naphtho[1,2-b]pyran compound having the following graphic formula:



wherein, R_7 and R_9 are different and they each represents a fluorine or an alkoxy group –OR.

when R_7 or R_9 is a group –OR, R represents

a linear or branched alkyl group,

a cycloalkyl or bicycloalkyl group,

a linear or branched haloalkyl group,

an aryl or heteroaryl group, optionally substituted by at least one electron donating group,

an aralkyl or heteroaralkyl group, where the aryl or heteroaryl group is defined above.

R_1 or R_2 independently represent:

a phenyl ring or heteroaryl ring which is optionally substituted with at least one substituent selected from:

a halogen atom selected from fluorine, chlorine and bromine,

a hydroxy group,

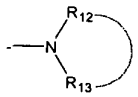
a linear or branched alkyl group comprising 1 to 12 carbon atoms,

a linear or branched alkoxy group comprising 1 to 12 carbon atoms,

a haloalkyl or haloalkoxy group corresponding to the (C1 -C12) alkyl or alkoxy groups above respectively which are substituted with at least one halogen atom,

a linear or branched alkenyl group comprising 2 to 12 carbon atoms,

an -NH2 group,



an -NHR11 group, R11 representing a linear or branched alkyl group comprising 1 to 6 carbon atoms, a group, in which R12 and R13, which are the same or different, independently representing a linear or branched alkyl group comprising 1 to 6 carbon atoms, or representing (together with the nitrogen atom to which they are bound) a 5- to 7-membered ring which can comprise at least one other heteroatom selected from oxygen, sulfur and nitrogen, said nitrogen being optionally substituted with an R14 group, which is a linear or branched alkyl group comprising 1 to 6 carbon atoms,

a polyether, polyamide, polycarbonate, polycarbamate, polyurea or polyester residue,

an aralkyl or heteroaralkyl group, the alkyl group, which is linear or branched, comprising 1 to 4 carbon atoms and the aryl and heteroaryl groups having the definitions given above,

an aryl or heteroaryl group defined above, or

the two substituents R1 and R2 together forming ring group such as those represented by an adamantyl, norbornyl, fluorenylidene, 5,5- or 10,10-di(C1 - C6)alkylanthracenylidene, 5- (or 10-)-(C1-C6)alkyl 5- (or 10-) -OH or -OR anthracenylidene or spiro(C5 –C6)cycloalkylanthracenylidene ring group; said ring group being optionally substituted with at least one of the substituents listed above in the definitions for R1, R2; said ring group being optionally substituted with two adjacent groups that form a 5- to 6-member aromatic or non-aromatic ring which can comprise at least one heteroatom selected from oxygen, sulfur, and nitrogen;

R_5, R_6, R_8, and R_{10} are the same or different and they represent, independently:

a hydrogen,

a halogen selected from fluorine, chlorine or bromine,

a linear or branched alkyl group which comprises 1 to 12 carbon atoms,

a cycloalkyl or bicycloalkyl group comprising 3 to 12 carbon atoms,

a linear or branched alkoxy group comprising 1 to 12 carbon atoms,

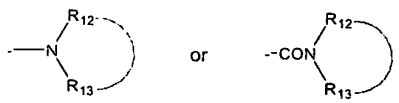
a haloalkyl, halocycloalkyl, or haloalkoxy group corresponding to the alkyl, cycloalkyl, alkoxy groups above respectively, which are substituted with at least one halogen atom selected from fluorine, chlorine and bromine,

a linear or branched alkenyl or alkynyl group comprising 1-12 carbon atoms,

a linear or branched alkenyloxy or alkynyloxy group comprising 1-12 carbon atoms,

an aryl or heteroaryl group having the same definition as that given above for aryl or heteroaryl groups within the definitions of R_1, R_2,

an aralkyl or heteroaralkyl group, the alkyl group, which is linear or branched, comprising 1 to 4 carbon atoms, and the aryl and heteroaryl groups having the



same definitions as those given above for R1, R2,

an amine or amide group: $--NH_2$, $--NHR_{11}$, $--CONH_2$, $--CONHR_{11}$, R_{11}, R_{12}, and R_{13} having their respective definitions given above for the amine substituents of the values R_1, R_2,

a $-C(R_{16})_2X$ group, wherein X is –CN, halogen, hydroxy, alkoxy, benzoyloxy, C1-C6 acyloxy, amino, C1-C6 mono-alklamino, C1-C6 dialkyl amino, morpholino, piperidino, 1-indolinyl, pyrrolidyl, or trimethylsilyloxy, R16 is hydrogen, C1-C6 alkyl, phenyl or naphthyl with C1-C6 alkyl or C1-C6 alkoxy substituents,

an $-OCOR_{17}$ or $-COOR_{17}$ group, R_{17} representing a straight or branched alkyl group comprising 1 to 6 carbon atoms, or a cycloalkyl group comprising 3 to 6 carbon atoms, or a phenyl group, optionally substituted with at least one of the substituents listed above within the values in the definitions of R_1, R_2,

a polyether, polyamide, polycarbonate, polycarbamate, polyurea or polyester residue.

27. A naphthopyran compound according to Claim 26 wherein the –OR group is methoxy.

28. A naphthopyran compound according to Claim 26 wherein R_5, R_6, R_8, and R_{10} are hydrogen or linear or branched alkyl groups comprising 1-6 carbon atoms.

29. A naphthopyran compound according to Claim 26 wherein R_1, R_2 are different or the same and represent phenyl groups having one substituent selected from the group consisting of an anthranilyl, azepinyl, benzoxazolyl, diazepinyl, diazolyl, imidazolidinyl, imidazolyl, imidazolinyl, indazolyl, indoleninyl, indolinyl, indolizinyl, indolyl, indoxazinyl, isobenzazolyl, isoindolyl, isooxazolyl, isooxazyl, isopyrrol, isoquinolyl, isothiazolyl, morpholino, morpholinyl, oxadiazolyl, oxathiazolyl, oxathiazyl, oxathiolyl, oxatriazolyl, oxazolyl, piperazinyl, piperazyl, piperidyl, purinyl, pyranopyrrolyl, pyrazinyl, pyrazolidinyl, pyrazolinyl, pyrazolyl, pyrazyl, pyridazinyl, pyridazyl, pyridyl, pyrimidinyl, pyrimidyl, pyridenyl, pyrrolidinyl, pyrrolinyl, pyrroyl, quinolizinyl, quinocyclidinyl, quinolyl, thiazolyl, triazolyl and triazyl group.

30. A photochromic composition containing at least one photochromic naphthopyran compound according to Claim 26 and a polymeric host material selected from the group consisting of polycarbonates and polyvinyl alcohol.

31. A photochromic article comprising at least one photochromic naphthopyran compound according to Claim 27 a polymeric host material.

32. A photochromic article having a layer thereon comprising the photochromic article according to Claim 30 characterized that the article is an ophthalmic lens.